Math 213 Spring 2020 Name: _____

Quiz 5: Section 5.4-5.5

1. Consider the power series $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{n}{n^2+1}$. Does the series converge absolutely, conditionally, or not at all? Answers must be fully justified. If you think a sequence $\{b_n\}$ is decreasing, this must be shown algebraically, or using calculus to show that $f'(x) < 0$ where $f(n) = a_n$. If you calculate a limit, do not just say what the answer is, show all your work.

   [Hint: You can solve this problem using only the Alternating Series Test in 5.5, the Limit Comparison Test in 5.4, and the p-Series Test in 5.3.]